Office of Regulatory Staff

Review of Duke Energy Carolinas, LLC
Amended Application for Approval of Rider 10

June 27, 2018

DOCKET NO. 2018-72-E

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EXECUTIVE SUMMARY

In Duke Energy Carolinas, LLC's ("Company" or "DEC") Amended Application for Approval of Rider 10, the Company is seeking recovery of $119,753,863 with $48,552,591 (or 41%) attributed to residential customers and $71,201,272 (or 59%) attributed to non-residential customers to cover the revenue requirements of Rider 10. This report details the Office of Regulatory Staff's ("ORS") findings and recommendations based on its review of the Company's Application, programs, and cost recovery mechanism. Based on its review, ORS recommends the following adjustment:

- A decrease of $514,910 to the total residential revenue requirement to correct a formula error within the Company's Amended Exhibit A, page 1. The amended exhibit included costs to be recovered for solar access fees, which should not be included for recovery in this docket.

The effect of this adjustment on the billing factors is included in Exhibit 1 of this report, and the rates are shown in the table below.

DSM/EE Rider	Requested 2019 Rate (¢/kWh)	Adjusted 2019 Rate (¢/kWh)
Residential	0.7463	0.7384
Non-Residential	1.6006	1.6006

ORS finds that the programs are performing well. Realized cumulative energy savings have exceeded the anticipated energy savings by sixty-five percent (65%), and although the number of non-residential opt-outs has increased, the Company has responded by creating an additional opt-in window and by adding programs that target non-residential customers. ORS also finds that the updated Demand Side Management ("DSM") and Energy Efficiency ("EE") Rate Riders were developed in accordance with the terms and conditions set forth by the Commission and are based on reasonable estimates of participation in the Company's DSM and EE programs.

BACKGROUND AND INTRODUCTION

In Docket No. 2013-298-E, Order No. 2013-889, the Public Service Commission of South Carolina ("Commission") approved the Revised Settlement Agreement ("Settlement") which stipulated, among other negotiated items, the approval of DEC's application for a new cost recovery mechanism and a revised portfolio of DSM/EE programs. The revised cost recovery model allows the Company to recover (1) all reasonable and prudent costs incurred for the adoption and implementation of new DSM and EE programs; (2) net lost revenues associated with a particular vintage of EE programs for a maximum of three years or the life of the measure; and (3) an earned incentive equal to 11.5% of the net benefits achieved through the programs.

On March 2, 2018, the Company filed an Application for Approval of Rider 10 in Docket No. 2018-72-E. Rider 10 consists of prospective amounts for Vintages 2018 and 2019, along with true-up components and recovery of lost revenues under previous vintages, namely Vintages 2014, 2015, 2016 and 2017. True-ups concerning the previous Save-A-Watt ("SAW") recovery mechanism were completed in the Company's 2016 filing for Rider 8. On May 1, 2018, the Company filed its Amended Application for Approval of Rider 10 to include lost revenues previously excluded in the original application. Subsequently, while developing responses to ORS information requests on the amended filing, DEC identified a computation error that incorrectly increased the Rider 10 residential rate. The amended Rider 10 billing factors, which are based solely on the revised cost recovery method, will apply to the billing period January 1, 2019 through December 31, 2019.

The Company's cost recovery mechanism identifies vintages by calendar year. The Vintage 2019 period is the calendar year 2019 and costs for measures projected to be installed in that year are to be recovered under Rider 10. Table 1 summarizes the program years for each of the vintages.

TABLE 1: VINTAGE PROGRAM YEARS

Program Year/Rider	Beginning Date	Ending Date	Vintage Number
1	February 1, 2010	December 31, 2010	SAW -Vintage 1
2	January 1, 2011	December 31, 2011	SAW -Vintage 2
3	January 1, 2012	December 31, 2012	SAW -Vintage 3
4	January 1, 2013	December 31, 2013	SAW -Vintage 4
5	January 1, 2014	December 31, 2014	Vintage 2014
6	January 1, 2015	December 31, 2015	Vintage 2015
7	January 1, 2016	December 31, 2016	Vintage 2016
8	January 1, 2017	December 31, 2017	Vintage 2017
9	January 1, 2018	December 31, 2018	Vintage 2018
10	January 1, 2019	December 31, 2019	Vintage 2019

DSM/EE PROGRAMS

The Company's filing includes requests for cost recovery encompassing twenty-three (23) DSM/EE programs. Major developments in 2017 include the following:

- The residential Appliance Recycling Program is no longer being offered by the Company. The Company's vendor for this program ceased operations in November of 2015, and the Company has not found a viable replacement vendor. Certain costs, such as lost revenues, continue to be collected under Rider 10.
- The Smart Energy in Offices program is no longer accepting new participants and will close on June 30, 2018 due to poor performance. This program was intended to engage commercial building operators and residents in energy management best practices to reduce energy usage. The actual energy savings for Vintage 2017 were only 24% of the projected savings.
- The Business Energy Report program was terminated on August 31, 2017, due to failure to achieve projected energy savings. This program provided participants reports comparing electric usage to peer groups and offering targeted energy efficiency tips. The actual energy savings for Vintage 2017 were only 1% of projected savings.
- Due to significant reductions in DEC's avoided costs for Vintage 2019, two programs – the Energy Wise for Business program and the residential HVAC Energy Efficiency program- are only marginally cost effective under Vintage 2019. The Company is taking actions to improve the cost effectiveness of these programs. ORS will monitor future developments in this area.

Table 2 shows program costs expressed in cents per kilowatt hour ("kWh") or dollars per kilowatt ("kW") for the Vintage 2019 projected participation of each program.

TABLE 2: PROGRAM COSTS

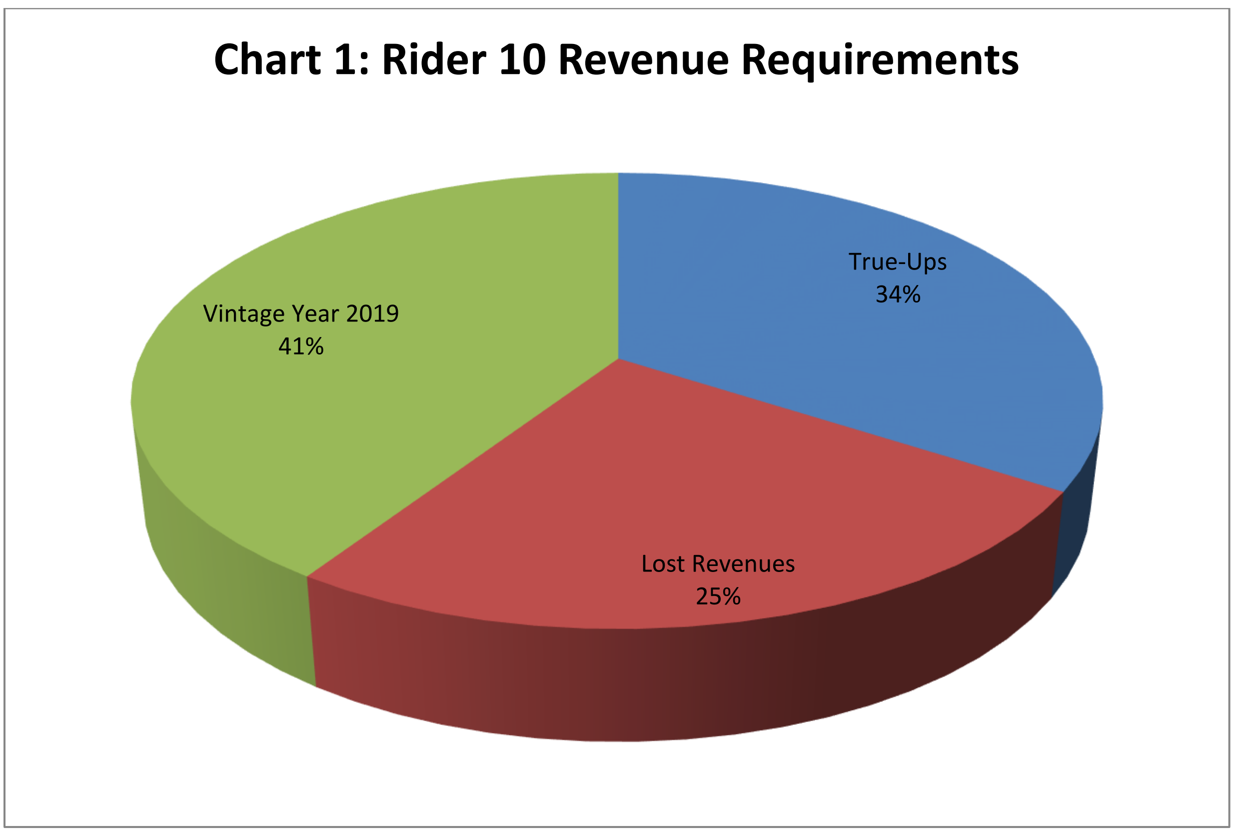
Residential Programs	¢/kWh
Energy Efficiency Education	4.6
Energy Assessments	3.3
My Home Energy Report	4.3
Appliance Recycling	Inactive
Energy Efficient Appliances and Devices	1.9
HVAC Energy Efficiency	5.3
Income Qualified Energy Efficiency and Weatherization Assistance	24.7
Multi-Family Energy Efficiency	1.5
Power Manager	$26.30/kW
Commercial and Industrial Programs	**¢/kWh**
Smart Saver for Non-Residential Customers – Technical Assessments	1.8
Smart Saver for Non-Residential Customers – Custom	1.7
Smart Saver for Non-Residential Customers – Energy Efficient Food Service Products	1.4
Smart Saver for Non-Residential Customers – Energy Efficient HVAC Products	3.3
Smart Saver for Non-Residential Customers – Energy Efficient Lighting Products	1.2
Non-Residential Energy Efficient Pumps and Drives	1.7
Non-Residential Energy Efficient ITEE	1.2
Non-Residential Energy Efficient Process Equipment Products	2.0
Small Business Energy Saver	1.9
Smart Energy in Offices	Inactive
Business Energy Report	Inactive
EnergyWise for Business	$169.62/kW
Power Share	$39.26/kW
Power Share Call Option	$63.98/kW*

*The cost shown for the Power Share Call Option program is a 2015 value.

Based on information provided by the Company, the programs appear to be performing well. The Company reports that realized cumulative energy savings of the Company's portfolio of programs through the end of calendar year 2017 exceeded the anticipated energy savings by approximately sixty-five percent (65%), and cumulative peak demand savings through 2017 from DSM programs were approximately ninety-five percent (95%) of the anticipated peak demand savings. The realized energy savings have been driven by higher than projected participation rates in both the residential and non-residential lighting programs and by a strong response to the Company's widening array of non-residential programs.

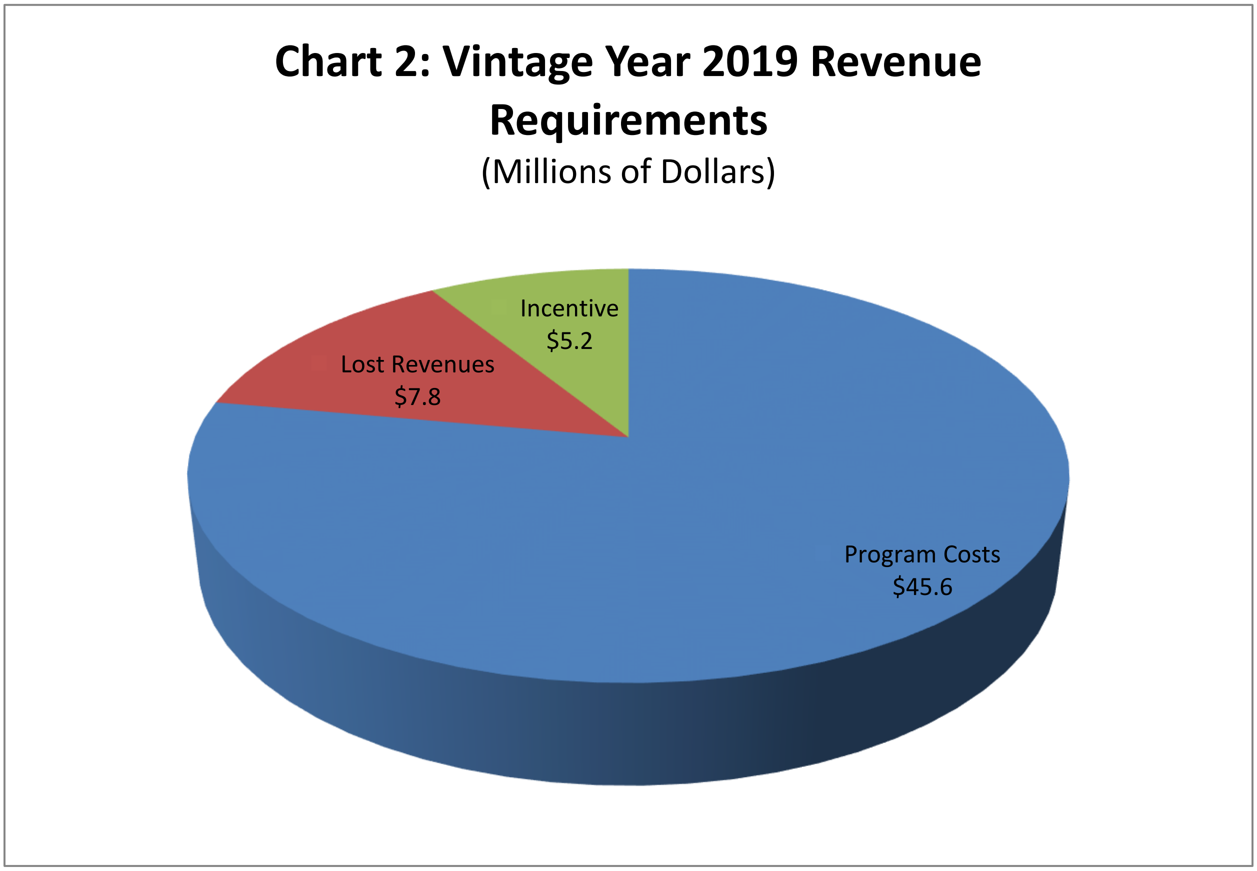
PROGRAM COST EVALUATION

In DEC's amended Rider 10 Application, the Company is seeking recovery of $48,552,591 (41%) from residential customers and $71,201,272 (59%) from non-residential customers to cover the revenue requirements of Rider 10 for a grand total of $119,753,863. A breakdown of the components of the total revenue requirement is shown in Chart 1.



A line-by-line breakout of the major cost components of the Rider 10 filing and the development of the billing factors is shown in Exhibit 1. The requested revenues from residential customers are recovered from all residential ratepayers, while the non-residential revenues are recovered from the non-residential ratepayers on an eligible rate schedule that does not opt-out of the DSM/EE Rider.

The cost components of Vintage Year 2019 (including lost revenues associated with that vintage), the largest portion of Rider 10, are illustrated in Chart 2.



For the Company's Vintage 2019 EE programs, the average lifetime cost of each kWh saved is estimated by the Company to be 2.0 cents. The average lifetime cost of the demand savings for the Company's Vintage 2019 DSM programs is estimated to be $34.93 per kW. These results compare favorably with the costs of supply-side generation.

ADVISORY GROUP

The DEC Collaborative Group ("Carolinas Collaborative"), the Company's advisory group concerning DSM and EE matters, continues to meet quarterly to discuss the status of each program, including preliminary participation statistics, Evaluation, Measurement & Verification ("EM&V") plans and preliminary EM&V data. The Carolinas Collaborative consists of members from both North Carolina and South Carolina representing all customer classes and a variety of governmental, environmental and commercial interests. During the meetings, the Company also provides a description of proposed program enhancements and seeks input from members of the advisory group regarding how these modifications may impact participation among the various sectors.

EVALUATION, MEASUREMENT & VERIFICATION

Information from the following EM&V reports was utilized for the Rider 10 filing:

- Energy Efficient Appliances and Devices Program – Final Evaluation Report dated December 8, 2017
- Save Energy and Water Kits – 2016 Program Year Evaluation Report dated November 29, 2017
- My Home Energy Report Program – Evaluation dated February 16, 2017
- Multifamily Energy Efficiency Program – EM&V Report dated June 27, 2017
- Non-Residential Assessments – PY 2014-2016 Evaluation Report dated June 8, 2017
- Smart Saver Custom Incentive Program – Evaluation dated February 13, 2017
- Injection Molding Machine – EM&V Report August 5, 2016
- LED Lighting – EM&V Report August 5, 2016
- Smart Saver Prescriptive Incentive Program – EM&V Report dated August 4, 2017
- Small Business Energy Saver Program – EM&V Report dated June 6, 2017
- Smart Energy in Offices – Evaluation Report dated December 15, 2017
- Power Manager – 2016 Evaluation dated April 11, 2017
- EnergyWise for Business Programs – Evaluation Report dated June 12, 2017

ESTIMATES USED IN THE FILING

All prospective portions of Rider 10 (pertaining to amounts associated with years 2018 and 2019) are estimates. These estimated values were derived from the DSMore™ computer model. ORS tested and reviewed the DSMore™ model and finds it suitable for this purpose.

Forecasted Retail Sales

The Company utilized its fall 2017 forecast of retail sales, adjusted for non-residential opt-outs, to develop the Rider 10 rates. ORS finds this to be a reasonable approach to establish rates.

Existing DSM Programs

Prior to the implementation of the SAW programs, the Company used the North Carolina and South Carolina Interruptible Service ("IS") and Standby Generation ("SG") programs – Rider IS and Rider SG ("Existing DSM Programs") – for demand-side management. Although DEC is working to move the Existing DSM Programs' customers to the new programs, some customers continue to take service under the Existing DSM Programs. The rate recovery for the Existing DSM Programs, which is based on the recovery of incentives paid, is computed separately from the SAW programs and the revised portfolio of programs. In the Rider 10 filing, the rate recovery for the Existing DSM Programs is included in the prospective portion of Rider 10.

ORS verified that all program costs, avoided costs and lost revenues associated with the Company's IS and SG programs have been excluded from the Company's incentive program, that the program costs associated with the Company's Existing DSM Programs are being recovered as a separate component of Rider EE, and that the recovery of the cost of these programs is consistent with the Company's approved tariff. The total cost of the Existing DSM Programs included in Rider 10 is $1,428,765.

Avoided Costs

ORS verified that the avoided energy and capacity costs calculations for Vintages 2014 through 2018 are based on the avoided energy cost rates and avoided capacity cost rates that were approved in Docket No. 2013-298-E. The avoided transmission and distribution ("T&D") costs are based on avoided T&D cost rates developed in a study completed during 2014. However, for Vintage 2019, the Company found that the avoided energy and capacity cost rates changed by more than 25% and updated the avoided energy and capacity cost rates. Due to this significant downward adjustment in the avoided energy and capacity cost rates, the Company is considering modifications to the DSM and EE programs to ensure that the programs remain cost effective.

ENERGY AND PEAK DEMAND SAVINGS

The Company projects that the measures installed in Vintage 2019 will reduce electric usage over the lifetimes of the installed measures by more than 5,602,411 megawatt hours and will provide the capability to reduce the annual one-hour peak usage by 896 megawatts. These are considerable savings and may provide DEC the ability to avoid or defer the construction of additional generating facilities.

OPT-OUTS

Under the original SAW programs, industrial customers classified as manufacturing industries that utilized at least 50% of electrical usage for manufacturing could opt-out of the Company's programs. Each eligible customer could opt-out of the EE programs, the DSM programs, or both sets of programs. Under the revised cost recovery mechanism and portfolio of programs (Vintage 2014 and forward), the ability to opt-out was expanded to include non-residential customers that are classified as manufacturing industries or that have an annual consumption of 1,000,000 kWh or greater in the billing months of the prior calendar year and have implemented cost-effective energy efficiency measures. The number of non-residential customers electing to opt-out of the EE programs has steadily increased from 58% in Vintage Year 2014 (based on energy utilization) to 70% in Vintage Year 2018. For the DSM programs, the customers opting out has increased from 54% in Vintage Year 2014 to 63% in Vintage Year 2018.

ORS continues to monitor the increasing numbers of non-residential customers that elect to opt-out of the Company's programs. The Company has responded by creating an additional opt-in window during the first week of March in each year and by adding additional programs targeted toward these customers.

RATE EVALUATION

The Rider 9 rates approved for 2018 and Rider 10 rates requested for 2019 are shown in Table 3.

TABLE 3: COMPARISON OF CURRENT AND REQUESTED RATES

DSM/EE Rider	Approved 2018 Rate (¢/kWh)	Requested 2019 Rate (¢/kWh)	Increase over 2018 Rate (¢/kWh)
Residential	0.6671	0.7463	0.0792
Non-Residential	1.0134	1.6006	0.5872

The requested change in the DSM/EE Rate Rider for an average residential customer using 1,000 kWh per month would increase the customer's monthly bill by approximately $.79. The Rider 10 residential rate is approximately 12% higher than the Rider 9 rate. The main drivers for this increase in the residential rate are the recovery of uncollected balances (true-ups) and increased participation in and increased effectiveness of the programs. The increased participation and increased effectiveness of the residential programs results in additional energy savings and thus additional lost revenues.

The requested Residential Rider EE would apply to all residential customers. However, due to the non-residential opt-out provision, the requested Non-Residential Riders in the table above apply only to those non-residential customers that have elected to participate in programs every vintage year since 2014.

Because eligible non-residential customers have the ability to opt-out of either the DSM or EE programs, and can do so by vintage, the Company developed separate non-residential rates for DSM and EE participants of each vintage. The non-residential rate shown in Table 3 is the total rate that would be paid by non-residential customers that do not opt-out of any vintage for either the DSM or EE programs.

CONCLUSION

ORS recommends the following adjustment to the residential revenue requirement:

- A decrease of $514,910 to the total residential revenue requirement to correct a formula error within the Company's Amended Exhibit A, page 1. The amended exhibit included costs to be recovered for solar access fees, which should not be included for recovery in this docket.

The effect of this adjustment on the residential rate is included in Exhibit 1 of this report.

ORS finds that the updated DSM/EE Rate Riders were developed in accordance with the terms and conditions set forth by the Commission and are based on reasonable estimates of participation in the Company's DSM and EE programs. ORS recommends the approval of the following adjusted Rider 10 rates as illustrated in Table 4:

TABLE 4: ADJUSTED RATE RECOMMENDATION

DSM/EE Rider	Approved 2018 Rate (¢/kWh)	Adjusted 2019 Rate (¢/kWh)	Increase over 2018 Rate (¢/kWh)
Residential	0.6671	0.7384	0.0713
Non-Residential	1.0134	1.6006	0.5872

With ORS's adjustment, the change in the DSM/EE Rider for an average residential customer using 1,000 kWh per month will increase the customer's monthly bill by approximately $.71.

Revenues and Billing Factors
Rider 10 - Amended and Adjusted

Residential Rider	Revenue Requirement
True-Ups:	
Cost to be Recovered for Vintage 2014 True-Up	($26,057)
Cost to be Recovered for Vintage 2015 True-Up	$200,073
Cost to be Recovered for Vintage 2016 True-Up	$685,078
Cost to be Recovered for Vintage 2017 True-Up	$11,573,242
Total True-Ups	$12,432,335
Lost Revenues:	
Vintage Year 2016 year four Lost Revenues (one-half year)	$1,401,449
Vintage Year 2017 year three Lost Revenues	$3,175,509
Vintage Year 2018 year two Lost Revenues	$2,340,939
Vintage Year 2019 year one Lost Revenues	$6,730,566
Total Lost Revenues	$13,648,463
Prospective Amounts:	
Costs to be Recovered for Vintage 2019	$21,615,111
Existing DSM Program Revenue Requirement	$599,227
Less: Costs to be recovered through solar access fee	($257,455)
Total Prospective Amounts	$21,956,883
Total Revenue Requirement - Residential	$48,037,681
Projected SC Residential Sales for the rate period (kWh)	6,505,643,783
Total Revenue Requirement for Residential (cents per kWh)	**0.7384**

Non-Residential Riders [1]	Revenue Requirement	Sales to Participants (kWh)	Rate Rider
True-Ups			
Cost to be Recovered for Vintage Year 2014 True-Up - Vintage Year 2014 EE Participant	$71,247	4,627,677,286	**0.0015**
Cost to be Recovered for Vintage Year 2014 True-Up - Vintage Year 2014 DSM Participant	$55,263	5,562,575,682	**0.0010**
Cost to be Recovered for Vintage Year 2015 True-Up - Vintage Year 2015 EE Participant	$2,082,248	4,757,192,872	**0.0438**
Cost to be Recovered for Vintage Year 2015 True-Up - Vintage Year 2015 DSM Participant	$161,532	5,522,803,666	**0.0029**
Cost to be Recovered for Vintage Year 2016 True-Up - Vintage Year 2016 EE Participant	$795,693	4,487,117,809	**0.0177**
Cost to be Recovered for Vintage Year 2016 True-Up - Vintage Year 2016 DSM Participant	$33,773	5,440,778,436	**0.0006**
Cost to be Recovered for Vintage Year 2017 True-Up - Vintage Year 2017 EE Participant	$24,402,806	4,360,626,235	**0.5596**
Cost to be Recovered for Vintage Year 2017 True-Up - Vintage Year 2017 DSM Participant	$697,903	5,440,778,436	**0.0128**
Total True-Ups	$28,300,465		
Lost Revenues			
Vintage Year 2016, year three Lost Revenues - EE Participants	$1,806,744	4,487,117,809	**0.0403**
Vintage Year 2017, year three Lost Revenues - EE Participants	$5,864,726	4,360,626,235	**0.1345**
Vintage Year 2018, year two Lost Revenues - EE Participants	$5,435,606	4,288,473,998	**0.1267**
Vintage Year 2019, year one Lost Revenues - EE Participants	$3,158,643	4,288,473,998	**0.0737**
Total Lost Revenue	$16,265,719		
Prospective Amounts:			
Costs to be Recovered for Vintage Year 2019 - EE Participant	$19,111,610	4,288,473,998	**0.4456**
Costs to be Recovered for Vintage Year 2018 - DSM Participant	$313,604	5,376,159,681	**0.0058**
Costs to be Recovered for Vintage Year 2019 - DSM Participant	$6,380,336	5,376,159,681	**0.1341**
Existing DSM Program Revenue Requirement	$829,538		
Total Prospective Amounts	$26,635,088		
Total Revenue Requirement - Non-Residential	$71,201,272		**1.6006**
Grand Total Revenue Requirements	$119,238,953		

[1] Each Non-Residential Rider is applicable to non-residential customers who are not eligible to opt out and to eligible customers who have not opted out.